

REMARKS

Claims 1-19 are pending in the application. Claims 1 and 17 have been amended. Claim 2 has been canceled. Entry of the amendment, and reexamination and reconsideration of the application based on the above-indicated amendments and the following remarks are respectfully requested.

Rejections under 35 U.S.C. §112:

Claims 1-19 have been rejected under 35 U.S.C. §112, second paragraph, as being indefinite. It is the Examiner's position that the phrase "or a mixture of two or more thereof" is unclear. Claims 1-5, 7, 9, 11, 13 and 15-19 have been rejected under 35 U.S.C. §112, first paragraph, as being non-enabling for double solvates of two different organic solvents. Claim 1 has been amended to delete the phrase "or a mixture of two or more thereof".

Claims 1-2 and 7-16 have been rejected under 35 U.S.C. §112, first paragraph, as not reasonably providing enablement for solvent other than 1-propanol. The Examiner contends that Example 7 used 2-pentanol, Example 8 used 1-pentanol, Example 9 used t-amyl alcohol and Example 10 used 1-propanol, but the actual products are solvates of both water and alcohol, and such compounds do not fall within claim 1. Claims 7-14 have been rejected under 35 U.S.C. §112, second paragraph, as being indefinite. The Examiner contends that the compounds of examples 7, 9, 11 and 13 are actually solvate hydrates and changing the name would "fix the problem". Claim 19 has been rejected under 35 U.S.C. §112, first paragraph, as not reasonably providing enablement for the solvate. The Examiner contends that Applicants have not shown that Formula II forms the hydrate of claim 19.

Applicants respectfully traverse the rejections for at least the following reasons. As an initial matter, Applicants wish to point out that "hydration" is solvation, with the solvent being water. Attached hereto as Exhibit A is an excerpt from HAWLEY'S CONDENSED CHEMICAL DICTIONARY, (11th ed. 1987), citing the entries for "hydration" and "solvation". As is well known by those having ordinary skill in the art, and as evidenced by the dictionary reference, "the phenomenon [of

hydration] is also called solvation". Thus the term "solvates" includes compounds having water and/or another solvent adsorbed on the solute. Accordingly, claims 7-14 are not indefinite.

Claims 1-2, 7-16 and 19 are fully supported by the disclosure, as the disclosure contains sufficient information regarding the solvates and crystals of the claims as to enable one skilled in the art to make and use the claimed solvates and crystals. Applicants have provided ten working examples that sufficiently detail how to make the claimed solvates and crystals. It is not necessary that Applicants provide a working example for each and every solvate and crystal covered by the claims. As stated in MPEP §2164.02:

The specification need not contain an example if the invention is otherwise disclosed in such manner that one skilled in the art will be able to practice it without undue amount of experimentation. *In re Borkowski*, 422 F.2d 904, 908, 164 USPQ 642, 645 (CCPA 1970).

As further stated in MPEP §2164.06:

[A] considerable amount of experimentation is permissible, if it is merely routine, or if the specification in question provides a reasonable amount of guidance with respect to the direction in which the experimentation should proceed. *In re Wands*, 858 F. ed at 737, 8 USPQ2d at 1404.

Applicants have provided more than enough information to enable the invention claimed. The specification need not be a blueprint in order to satisfy the requirement for enablement under 35 U.S.C. §112, first paragraph. One skilled in the art reading Applicants' specification at the time it was filed would have been taught how to make the full scope of the claimed invention without undue experimentation. Accordingly, the rejection of claims 1-2, 7-16 and 19 under 35 U.S.C. §112, first paragraph, should be withdrawn.

Objection to the Specification:

The Examiner has objected to the specification, stating that Examples 7-10 appear to be defective because the compounds are listed as hydrates, and yet water was not used. Applicants respectfully submit that Examples 7-10 are not defective.

The source of the water may be the amorphous powder of the compound (I), which has not been identified as being anhydrous. The source of the water may also be impurities in the solvents used in the process and/or water absorbed from the environment. It is noted that the crystalline forms of the compounds have different degrees of water absorption depending on the environment.

Objection to the Claims:

Claim 19 has been objected to as improperly dependent on claim 17. Claim 17 has been amended to recite that the compound (II), the solvate or a crystal thereof is produced by deprotecting the solvate of the compound (I) or a crystal thereof. Support for the amendment is found in the specification at page 12, lines 14-27. In view of the amendment to claim 17, claim 19 is properly dependent therefrom.

Conclusion:

Applicant respectfully submits that this application is in condition for allowance. A Notice of Allowance is respectfully solicited.

In the event there are any issues the Examiner would like to discuss with the undersigned attorney, it is requested that he contact the undersigned by telephone.

In the event any fees are due in connection with the filing of this document, the Commissioner is authorized to charge those fees to our Deposit Account No. 18-0988 under Attorney Docket No. SHIOP0100US.

Respectfully submitted,
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*Hawley's
Condensed Chemical
Dictionary*

ELEVENTH EDITION

Revised by

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and

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VAN NOSTRAND REINHOLD COMPANY

New York

ionine hydroxy an-
e (an essential amino
l livestock feeds.

CAS: 461-72-3.

solid; crystallizing in
water, ether; soluble
of alkali hydroxides;

thesis of pharmaceuti-
d certain high poly-
ins.

59-67-6. $C_{10}H_{22}O_2$
ogra oil.

hydrabamine phenoxy-
ble mixture of crystal-
illin salts consisting
N'-bis(dehydroabietyl)-
taller amounts of the
tetrahydro derivatives.
al).

family of water soluble
cations, anionic and
ecular weights and co-
retention, drainage and

1. (1-hydrazinophthal-
 $C_8H_6N_4NNH_2HCl$.
ss, crystalline powder.
ses), very slightly solu-
l, soluble in water, pH

tensive agent)

M for several grades of
es. $Al_2O_3 \cdot 3H_2O$ or
e, uniform particle size.
white powders.
aper, plastics, adhesives,
smetics.

or a combination solvent
scouring.

ecruy methylenedi-
CAS: 14235-86-0.

ne powder, insoluble in
ispersions with strong ad-
m or potassium dinaph-
es.

Hazard: A poison.

Use: Biocide for protection of wool, leather,
paints, and wood products.

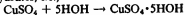
hydrazine. See hydrolase.

hydrate. See hydration.

hydrated aluminum oxide. See alumina trihy-
drate.

hydrated silica. See silicic acid.

hydration. (1) The reaction of molecules of water
with a substance in which the H—OH bond is
not split. The products of hydration are called
hydrates, i.e.,



A given compound often forms more than one
hydrate; the hydration of sodium sulfate can give
 $Na_2SO_4 \cdot 10H_2O$ (decahydrate), $Na_2SO_4 \cdot 7H_2O$
(heptahydrate), and $Na_2SO_4 \cdot H_2O$ (monohy-
drate). In formulas of hydrates, the addition of
the water molecules is conventionally indicated
by a centered dot. The water is usually split off
by heat, yielding the anhydrous compound.
See also water of crystallization, gas hydrate.

(2) The strong affinity of water molecules for
particles of dissolved or suspended substances
that is the fundamental cause of electrolytic dis-
sociation. Ions and other charged particles thus
acquire a tightly held film of water, an effect
that is important in the stabilization of colloidal
solutions. The phenomenon is also called solva-
tion. The term hydration is used in the paper
industry to describe the combination of water
with wood pulp in the beater, as a result of which
fiber-to-fiber adhesion is increased by hydrogen
bonding.
See also solvation.

hydraulic. (1) Descriptive of a machine or opera-
tion in which a liquid is used to exert or transfer
pressure, e.g., hydraulic press, hydraulic fractur-
ing. The liquid is usually water, but it may also
be of higher viscosity such as a heavy oil or gly-
col-type lubricant, as in brake fluid. (2) Descrip-
tive of a material that hardens on addition of
water, e.g., hydraulic cement.
See also following entries.

hydraulic barking. Removal of bark from logs by
impingement of a stream of water delivered from
one or more nozzles at a pressure of 1200-1400
psi. Several types of machines are used, the best
known being the Hansel barker.

hydraulic cement. See cement, hydraulic.

hydraulic fluid. A liquid or mixture of liquids de-
signed to transfer pressure from one point to

another in a system on the basis of Pascal's Law,
i.e., pressure on a confined liquid is transmitted
equally in all directions. For industrial use, such
fluids are based on paraffinic and cycloparaffinic
petroleum fractions, usually with added antioxi-
dant and viscosity index improvers. Flame-resis-
tant types include additives such as phosphate
esters or emulsions of water and ethylene glycol.
The brake fluids used in autos are composed of
(1) a lubricant (polypropylene glycol of 1000-
2000 mw, a castor oil derivative, or a synthetic
polymeric mixture of monobutyl ethers of oxy-
ethylene and oxypropylene glycols); (2) a solvent
blend (mixture of glycol ethers); and (3) additives
for corrosive resistance, buffering, etc.; bp 375-
550F. The composition and performance charac-
teristics are specified by the Society of Automot-
ive Engineers.

hydraulic fracturing. A method of enhanced re-
covery of natural gas and petroleum. An aqueous
solution of a water-soluble gum (e.g., guar), in
which coarse sand or sintered bauxite is sus-
pended, is introduced through a well bore under
extremely high pressure into the rock structure
in which the gas or oil is entrained. This creates
minute fissures (fractures) in the rock which are
held open by the suspended particles after the
liquid has drained off. The hydrocarbon flows
through these fissures to the well bore, and is
evacuated to a pipeline. The sand and bauxite
are called "proppants" by petroleum engineers
as they prevent the fissures from closing. Sand
is used in shallower wells and bauxite in forma-
tions over 10,000 ft deep.
See also chemical flooding.

hydraulic lime. See lime, hydraulic.

hydraulic press. A simple machine (the only one
discovered since prehistoric times) that operates
on Pascal's principle (1650): pressure applied to
a unit area of a confined liquid is transmitted
equally in all directions throughout the liquid.
A hydraulic press is comprised of a large piston
in an enclosed chamber; its top is attached to
a platen that rests on the members of a metal
frame when the press is open. Water (or oil) is
pumped into the chamber through a valve; once
it has been filled, whatever pressure per square
inch is applied at the valve will be transmitted
to every square inch of the piston and of the
walls of the chamber as well. Thus, for a piston
whose cross-sectional area is 100 sq in., 10 psi
at the valve will exert 1000 lb pressure on the
bottom of the piston, causing it to rise and the
press to close. The pressure on the object being
pressed varies inversely with its area. Hydraulic
presses exerting pressures up to 15 tons are used
for shaping steel products. Less dramatic are

See also hydration (2).

Manufacture of sodium carbonate (soda ash, Na_2CO_3) from salt, ammonia, carbon dioxide, and limestone by an ingenious sequence of reactions involving recovery and reuse of practically all the ammonia and part of the carbon dioxide. Limestone is heated to produce lime and carbon dioxide. The latter is dissolved in water containing the ammonia and salt, with resultant precipitation of sodium bicarbonate. This is separated by filtration, dried, and heated to form normal sodium carbonate. The liquor from the bicarbonate filtration is heated and treated with lime to regenerate the ammonia. Calcium chloride is a major byproduct. *Note:* Because this process requires much energy and pollutes streams and rivers with chloride effluent many plants using it have closed, production being obtained from the natural deposits in the Western US.

Use: General solvent, rubber reclaiming.

The chief uses of organic solvents are in the coatings field (paints, varnishes and lacquers), industrial cleaners, printing inks, extractive processes, and pharmaceuticals. Since many solvents are flammable and toxic to varying degrees, they contribute to air pollution and fire hazards. For this reason their use in coatings and cleaners has declined in recent years.

See individual compounds.

See individual compounds.

solvent drying. Removal of water from metal

solvent dye. See dye, solvent.

In liquid-liquid extraction one or more compo-

The solvents used vary with the nature of the products involved. Widely used are water, hexane, acetone, isopropyl alcohol, furfural, xylene, liquid sulfur dioxide, and tributyl phosphate. Solvent extraction is an important method of both producing and purifying such products as lubricating and vegetable oils, pharmaceuticals and nonferrous metals.

solvent naphtha. See naphtha (2b).

Solvent Red 73. See 4',5'-diiodofluorescein.

Solvent Yellow 3. See

solvolysis. A reaction in which a substance is dissolved in a solvent, in which the solvent acts as a reagent, and the substance (solvent) is converted into a new substance. Intermediate products are formed in this process. See also hydrolysis.

soman. (methylphosphorotrimethylpropylester). $(CH_3)_3CCH(CH_3)OP(=O)(CH_3)_2$
Properties: Colorless liq, bp 167C, fp -70C, d 1.26
Hazard: Highly toxic by skin absorption; may inhibit cholinesterase; inh dose (man) 0.01 mg/l

somatotropic hormone.
CAS: 9002-72-6.
anterior lobe of the
crease in general bod
carbohydrate and lipi

Sommelet reaction. P_1 from aralkyl or alkyl hexamethylenetetramine hydrolysis of the former

Sommelet-Hauser rearrangement of benzyl quaternary ortho-substituted benzenes with alkali metals

Sonn-Muller method.
dehydres from anilide:
anilide with phosph
imido chloride, reduc
with stannous chlori
obtained anil.

sonolysis. The breakdown (disintegration) of molecules by the action of sound waves. Examples: sonolysis in the presence of hydrogen atoms, hydrogen peroxide, hydrogen, oxygen and carbon monoxide, in an argon atmosphere, molecular hydrogen, nitro-

"Sonostat."³⁰⁹ TM for based on nitrogenous
ural and synthetic fib

"Sonowax."⁴⁵ TM for
based on microcrystal
or as top finish on va